What is claimed is:

1. A method for producing a fuel cell unit including a membrane electrode assembly formed by a solid polymer electrolyte membrane and a pair of electrodes located at both sides of the solid polymer electrolyte membrane, and a pair of separators which hold the membrane electrode assembly, comprising the steps of:

applying liquid sealant to at least one of a marginal portion of the solid polymer electrolyte membrane, said marginal portion being not covered by the pair of electrodes when assembled, and a surface of each of the pair of separators, said surface corresponding to the marginal portion of the solid polymer electrolyte membrane;

holding the solid polymer electrolyte membrane with the pair of separators to perform temporary assembling; and

solidifying the liquid sealant while maintaining a temporary assembling state.

2. A method for producing a fuel cell unit according to claim 1, wherein

said liquid sealant is also applied to at least one of an outer periphery of said membrane electrode assembly, in the vicinity of a communication-hole which penetrates through said separator, and an outer periphery of a cooling medium passage of said separators.

3. A method for producing a fuel cell unit according to claim 1, wherein

said liquid sealant is applied to at least one of groove portions formed on said separators.

4. A method for producing a fuel cell unit according to claim 1, wherein

said liquid sealant is made of a thermosetting type fluoride material or a thermosetting type silicone.

5. A method for producing a fuel cell unit according to claim 1, wherein a cross-sectional shape of said liquid sealant applied is substantially circular.

6. A method for producing a fuel cell stack having a plurality of stacked fuel cell units including a membrane electrode assembly formed by a solid polymer electrolyte

membrane and a pair of electrodes located at both sides of the solid polymer electrolyte membrane, and a pair of separators which hold the membrane electrode assembly, comprising the steps of:

applying liquid sealant to at least one of a marginal portion of the solid polymer electrolyte membrane, said marginal portion being not covered by the pair of electrodes when assembled, and a surface of each of the pair of separators, said surface corresponding to the marginal portion of the solid polymer electrolyte membrane;

holding the solid polymer electrolyte membrane with the pair of separators to perform temporary assembling;

solidifying the liquid sealant while maintaining a temporary assembling state to obtain a fuel cell unit;

stacking a predetermined number of the fuel cell units so as to be placed between a pair of end plates, and

applying a compression load in a direction reducing the distance between the end plates to produce a fuel cell stack.

7. A method for producing a fuel cell stack according to claim 6, wherein

said liquid sealant is also applied to at least one of an outer periphery of said membrane electrode assembly, in the vicinity of a communication-hole which penetrates through said separator, and an outer periphery of a cooling medium passage of said separators.

8. A method for producing a fuel cell stack according to claim 6, wherein

said liquid sealant is applied to at least one of groove portions formed on said separators.

9. A method for producing a fuel cell stack according to claim 6, wherein

said liquid sealant is made of a thermosetting type fluoride material or a thermosetting type silicone.

10. A method for producing a fuel cell stack according to claim 6, wherein a cross-sectional shape of said liquid sealant applied is substantially circular.

11. A fuel cell unit including a membrane electrode assembly formed by a solid polymer electrolyte membrane and a pair of electrodes located at both sides of the solid polymer electrolyte membrane, and a pair of separators which hold the membrane electrode assembly, obtained by the process comprising the steps of:

applying liquid sealant to at least one of a marginal portion of the solid polymer electrolyte membrane, said marginal portion being not covered by the pair of electrodes when assembled, and a surface of each of the pair of separators, said surface corresponding to the marginal portion of the solid polymer electrolyte membrane;

holding the solid polymer electrolyte membrane with the pair of separators to perform temporary assembling; and

solidifying the liquid sealant while maintaining a temporary assembling state.

12. A fuel cell unit according to claim 11, wherein

said liquid sealant is also applied to at least one of an outer periphery of said membrane electrode assembly, in the vicinity of a communication-hole which penetrates through said separator, and an outer periphery of a cooling medium passage of said separators.

13. A fuel cell unit according to claim 11, wherein

said liquid sealant is applied to at least one of groove portions formed on said separators.

14. A fuel cell unit according to claim 11, wherein

said liquid sealant is made of a thermosetting type fluoride material or a thermosetting type silicone.

15. A fuel cell unit according to claim 11, wherein a cross-sectional shape of said liquid sealant applied is substantially circular.

16. A fuel cell stack having a plurality of stacked fuel cell units including a membrane electrode assembly formed by a solid polymer electrolyte membrane and a pair of electrodes located at both sides of the solid polymer electrolyte membrane, and a pair of separators which hold the membrane electrode assembly, obtained by the process

comprising the steps of:

applying liquid sealant to at least one of a marginal portion of the solid polymer electrolyte membrane, said marginal portion being not covered by the pair of electrodes when assembled, and a surface of each of the pair of separators, said surface corresponding to the marginal portion of the solid polymer electrolyte membrane;

holding the solid polymer electrolyte membrane with the pair of separators to perform temporary assembling;

solidifying the liquid sealant while maintaining a temporary assembling state to obtain a fuel cell unit;

stacking a predetermined number of the fuel cell units so as to be placed between a pair of end plates, and

applying a compression load in a direction reducing the distance between the end plates to produce a fuel cell stack.

17. A fuel cell stack according to claim 16, wherein

said liquid sealant is also applied to at least one of an outer periphery of said membrane electrode assembly, in the vicinity of a communication-hole which penetrates through said separator, and an outer periphery of a cooling medium passage of said separators.

18. A fuel cell stack according to claim 16, wherein

said liquid sealant is applied to at least one of groove portions formed on said separators.

19. A fuel cell stack according to claim 16, wherein

said liquid sealant is made of a thermosetting type fluoride material or a thermosetting type silicone.

20. A fuel cell stack according to claim 16, wherein a cross-sectional shape of said liquid sealant applied is substantially circular.